

U.S. National Phase of PCT/EP2003/005768

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 15 (Cancelled).

16. (Currently Amended) The device as claimed in claim [[15]] 29, wherein:

said first receiving unit and said second receiving unit are UV-detectors.

17. (Currently Amended) The device as claimed in claim [[15]] 29, wherein:

said control/evaluation unit effects control in such a way that at least one of the two intensity values, measured in the measuring branch (MB) or in the reference branch (RB), lies within the measuring range of said respective receiving unit.

Claim 18 (Cancelled).

19. (Previously presented) The device as claimed in claim 17, wherein:

said control/evaluation unit checks whether one of the two intensity values - that is, the intensity value measured in the reference branch (RB) or that in the measuring branch (MB) - is at least as great as a predetermined maximum intensity value ($I_{max,1}$).

Claims 20 - 26 (Cancelled).

27. (Currently Amended) The device as claimed in claim [[26]] 29, further comprising:

a display, wherein:

said control/evaluation unit presents the measured value and the possibly present disturbance variable on said display.

28. (Currently Amended) The device as claimed in claim [[25]] 28, wherein:

said control/evaluation unit statistically determines a measured value based on a plurality of individual, measured values.

29. (New) A device for photometric measurement of the concentration of a chemical substance in a solution, comprising:

a lamp, which emits electromagnetic radiation in a predetermined wavelength range and at a given intensity value;

a first receiving unit in a measuring branch (MB), which receives the radiation transmitted through the solution at a first wavelength;

a second receiving unit in a reference branch (RB), which receives the radiation transmitted through the solution at a second wavelength; and

a control/evaluation unit connected to said first receiving unit and said second receiving unit, which uses the intensity values determined either by the measurement branch (MB) or by the reference branch (RB), in order to control the intensity of the radiation emitted by said lamp, such that the measured values made available are highly plausible, wherein:

in the case of a high concentration of the substance in the solution, said control/evaluation unit uses the intensity value obtained in the reference branch (RB) to control the intensity of said lamp; and

in the case of a low concentration of the substance in the solution, said control/evaluation unit uses the intensity value obtained in the measuring branch (MB) to control the intensity of said lamp.

30. (New) A device for photometric measurement of the concentration of a chemical substance in a solution, comprising:

a lamp, which emits electromagnetic radiation in a predetermined wavelength range and at a given intensity value;

a first receiving unit in a measuring branch (MB), which receives the radiation transmitted through the solution at a first wavelength;

a second receiving unit in a reference branch (RB), which receives the radiation transmitted through the solution at a second wavelength; and

a control/evaluation unit connected to said first receiving unit and said second receiving unit, which uses the intensity values determined either by the measurement branch (MB) or by the reference branch (RB), in order to control the intensity of the radiation emitted by said lamp, such that the measured values made available are highly plausible, wherein:

in the case of a high concentration of the substance in the solution, said control/evaluation unit uses the intensity value obtained in the reference branch (RB) to control the intensity of said lamp;

in the case of a low concentration of the substance in the solution, said control/evaluation unit uses the intensity value obtained in the measuring branch (MB) to control the intensity of said lamp;

said control/evaluation unit checks whether the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}); and

in the case that the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}), said control/evaluation unit reduces the intensity of said lamp successively in predetermined steps, until the intensity value measured in the reference branch (RB) is smaller than the predetermined maximum intensity value (I_{max_1}).

31. (New) A device for photometric measurement of the concentration of a chemical substance in a solution, comprising:

a lamp, which emits electromagnetic radiation in a predetermined wavelength range and at a given intensity value;

a first receiving unit in a measuring branch (MB), which receives the radiation transmitted through the solution at a first wavelength;

a second receiving unit in a reference branch (RB), which receives the radiation transmitted through the solution at a second wavelength; and

a control/evaluation unit connected to said first receiving unit and said second receiving unit, which uses the intensity values determined either by the measurement branch (MB) or by the reference branch (RB), in order to control the intensity of the radiation emitted by said lamp, such that the measured values made available are highly plausible, wherein:

said control/evaluation unit effects control in such a way that at least one of the two intensity values, measured in the measuring branch (MB) or in the reference branch (RB), lies within the measuring range of said respective receiving unit;

said control/evaluation unit checks whether one of the two intensity values—that is, the intensity value measured in the reference branch (RB) or that in the measuring branch (MB)—is at least as great as a predetermined maximum intensity value (I_{max_1});

in the case that neither the intensity value measured in the reference branch (RB) nor that in the measuring branch (MB) is at least as great as the predetermined maximum intensity value (I_{max_1}), said control/evaluation unit increases the intensity of said lamp, said control/evaluation unit subsequently checks whether the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}); and

in the case that the intensity value measured in the reference branch (RB) is greater than the predetermined maximum intensity value (I_{max_1}), said control/evaluation unit reduces the intensity of said lamp successively in predetermined steps, until the intensity value measured in the reference branch (RB) is smaller than the predetermined maximum intensity value (I_{max_1}).

32. (New) A device for photometric measurement of the concentration of a chemical substance in a solution, comprising:

a lamp, which emits electromagnetic radiation in a predetermined wavelength range and at a given intensity value;

a first receiving unit in a measuring branch (MB), which receives the radiation transmitted through the solution at a first wavelength;

a second receiving unit in a reference branch (RB), which receives the radiation transmitted through the solution at a second wavelength; and

a control/evaluation unit connected to said first receiving unit and said second receiving unit, which uses the intensity values determined either by the measurement branch (MB) or by the reference branch (RB), in order to control the intensity of the radiation emitted by said lamp, such that the measured values made available are highly plausible, wherein:

control of the intensity of said lamp can be deactivated; and

said control/evaluation unit furnishes a measured value for the concentration of the substance in the solution, on the basis of the intensity values measured in the measuring branch (MB) and the reference branch (RB).

33. (New) A device for photometric measurement of the concentration of a chemical substance in a solution, comprising:

a lamp, which emits electromagnetic radiation in a predetermined wavelength range and at a given intensity value;

a first receiving unit in a measuring branch (MB), which receives the radiation transmitted through the solution at a first wavelength;

a second receiving unit in a reference branch (RB), which receives the radiation transmitted through the solution at a second wavelength; and

a control/evaluation unit connected to said first receiving unit and said second receiving unit, which uses the intensity values determined either by the measurement branch (MB) or by the reference branch (RB), in order to control the intensity of the radiation emitted by said lamp, such that the measured values made

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available are highly plausible, wherein:

 said control/evaluation unit subjects an obtained measured value to a plausibility check, in which the intensity values obtained in the measurement branch (MB) and the reference branch (RB) are checked for predetermined conditions; and

 said control/evaluation unit assigns to an obtained measured value a disturbance variable found in the course of the plausibility check.